Claims

[c1]   1. A system for performing engine baseline modeling, comprising:

an engine service database that contains engine data;

a preprocessor for processing the engine data into a predetermined format; and

an engine baseline modeling component that builds an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c2]   2. The system according to claim 1, wherein the preprocessor comprises a data acquisition component that extracts the engine data from the engine service database.

[c3]   3. The system according to claim 1, wherein the preprocessor comprises a data scrubbing component that cleans the engine data.

[c4]   4. The system according to claim 1, wherein the preprocessor comprises a data segmenting component that segments the engine data into a plurality of groups.

[c5]   5. The system according to claim 1, wherein the engine baseline model is a regression model.

[c6]   6. The system according to claim 1, wherein the engine baseline modeling component comprises a metric component that validates the engine baseline model.

[c7]   7. The system according to claim 1, wherein the engine baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c8]   8. The system according to claim 1, further comprising a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c9]   9. A system for performing engine baseline modeling, comprising:

an engine service database that contains engine data;

a preprocessor for processing the engine data into a predetermined format;

an engine baseline modeling component that builds an engine baseline

model from the preprocessed data using a regression analysis, wherein the

regression analysis relates engine performance variables as a function of

engine operating conditions; and

a model diagnostics component that evaluates the performance of the of the

engine baseline model.

[c10]   10. The system according to claim 9, wherein the preprocessor comprises a

data acquisition component that extracts the engine data from the engine

service database.

[c11]   11. The system according to claim 9, wherein the preprocessor comprises a

data scrubbing component that cleans the engine data.

[c12]   12. The system according to claim 9, wherein the preprocessor comprises a

data segmenting component that segments the plurality of engine data into

a plurality of groups.

[c13]   13. The system according to claim 9, wherein the engine baseline modeling

component comprises a metric component that validates the engine baseline

model.

[c14]   14. The system according to claim 9, wherein the engine baseline modeling

component comprises a heuristics component that generates rules for

cleaning the preprocessed data.

[c15]   15. A system for performing engine baseline modeling of an aircraft engine,

comprising:

an engine service database that contains aircraft engine data;

a preprocessor for processing the aircraft engine data into a predetermined

format, wherein the preprocessor corrects the aircraft engine data to

standard conditions derived for an aircraft engine;

an engine baseline modeling component that builds an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and

a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c16]   16. The system according to claim 15, wherein the engine baseline modeling component comprises a metric component that validates the engine baseline model.

[c17]   17. The system according to claim 15, wherein the engine baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c18]   18. A system for performing engine baseline modeling of an aircraft engine, comprising:

an engine service database that contains aircraft engine data;

a preprocessor for processing the aircraft engine data into a predetermined format, wherein the preprocessor corrects the aircraft engine data to standard conditions derived for an aircraft engine;

an engine baseline modeling component that builds an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions, and the engine baseline modeling component comprising a metric component to validate the engine baseline model; and

a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c19]   19. A system for performing engine baseline modeling of an aircraft engine, comprising:

means for storing aircraft engine data;

means for preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing means corrects the aircraft engine data to

standard conditions derived for an aircraft engine;

means for building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and

means for evaluating the performance of the of the engine baseline model.

[c20]   20. The system according to claim 19, wherein the building means comprises means for validating the engine baseline model.

[c21]   21. The system according to claim 19, wherein the building means comprises means for generating rules for cleaning the preprocessed data.

[c22]   22. A method for performing engine baseline modeling, comprising:
storing engine data;
preprocessing the engine data into a predetermined format; and
building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c23]   23. The method according to claim 22, wherein the preprocessing comprises extracting the engine data from an engine service database.

[c24]   24. The method according to claim 22, wherein the preprocessing comprises cleaning the engine data.

[c25]   25. The method according to claim 22, wherein the preprocessing comprises segmenting the engine data into a plurality of groups.

[c26]   26. The method according to claim 22, wherein the engine baseline model is a regression model.

[c27]   27. The method according to claim 22, further comprising validating the engine baseline model.

[c28]   28. The method according to claim 22, further comprising generating rules for cleaning the preprocessed data.

[c29]   29. The method according to claim 22, further comprising evaluating the performance of the of the engine baseline model.

[c30]   30. A method for performing engine baseline modeling, comprising:
storing engine data;
preprocessing the engine data into a predetermined format;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and evaluating the performance of the of the engine baseline model.

[c31]   31. The method according to claim 30, wherein the preprocessing comprises extracting the engine data from an engine service database.

[c32]   32. The method according to claim 30, wherein the preprocessing comprises cleaning the engine data.

[c33]   33. The method according to claim 30, wherein the preprocessing comprises segmenting the engine data into a plurality of groups.

[c34]   34. The method according to claim 30, further comprising validating the engine baseline model.

[c35]   35. The method according to claim 30, further comprising generating rules for cleaning the preprocessed data.

[c36]
36. A method for performing engine baseline modeling of an aircraft engine, comprising:
storing aircraft engine data;
preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and

evaluating the performance of the of the engine baseline model.

[c37]   37. The method according to claim 36, further comprising validating the engine baseline model.

[c38]   38. The method according to claim 36, further comprising generating rules for cleaning the preprocessed data.

[c39]   39. A method for performing engine baseline modeling of an aircraft engine, comprising:

storing aircraft engine data;

preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;

building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions;

validating the engine baseline model; and

generating model diagnostics from the engine baseline model.

[c40]   40. A method for performing engine baseline modeling of an engine, comprising:

presenting a user with aircraft engine data;

prompting the user to select engine performance variables and engine operating conditions from the aircraft engine data to model;

in response to the user selection, preprocessing the engine data into a predetermined format; and

using a regression to build an engine baseline model from the data.

[c41]   41. The method according to claim 40, wherein the preprocessing comprises cleaning the engine data.

[c42]   42. The method according to claim 40, further comprising validating the engine baseline model.

[c43]   43. The method according to claim 40, further comprising generating rules for cleaning the preprocessed data.

[c44]   44. The method according to claim 40, further comprising evaluating the performance of the of the engine baseline model.

[c45]   45. The method according to claim 44, further comprising displaying results from the evaluation to the user.

[c46]   46. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing engine data;
preprocessing the engine data into a predetermined format; and
building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c47]   47. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for extracting the engine data from an engine service database.

[c48]   48. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for cleaning the engine data.

[c49]   49. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for segmenting the engine data into a plurality of groups.

[c50]   50. The computer-readable medium according to claim 46, wherein the engine baseline model is a regression model.

[c51]   51. The computer-readable medium according to claim 46, further comprising instructions for validating the engine baseline model.

[c52]
52. The computer-readable medium according to claim 46, further

comprising instructions for generating rules for cleaning the preprocessed data.

[c53]   53. The computer-readable medium according to claim 46, further comprising instructions for evaluating the performance of the of the engine baseline model.

[c54]   54. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing engine data;
preprocessing the engine data into a predetermined format;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
evaluating the performance of the of the engine baseline model.

[c55]   55. The computer-readable medium according to claim 54, wherein the preprocessing comprises instructions for extracting the engine data from an engine service database.

[c56]   56. The computer-readable medium according to claim 54 wherein the preprocessing comprises instructions for cleaning the engine data.

[c57]   57. The computer-readable medium according to claim 54, wherein the preprocessing comprises instructions for segmenting the engine data into a plurality of groups.

[c58]   58. The computer-readable medium according to claim 54, further comprising instructions for validating the engine baseline model.

[c59]   59. The computer-readable medium according to claim 54, further comprising instructions for generating rules for cleaning the preprocessed data.

[c60]   60. A computer-readable medium storing computer instructions for

instructing a computer system to perform engine baseline modeling, the computer instructions comprising:

storing aircraft engine data;

preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;

building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and

evaluating the performance of the of the engine baseline model.

[c61]   61. The computer-readable medium according to claim 60, further comprising instructions for validating the engine baseline model.

[c62]   62. The computer-readable medium according to claim 60, further comprising instructions for generating rules for cleaning the preprocessed data.

[c63]   63. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:

storing aircraft engine data;

preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;

building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions;

validating the engine baseline model; and

generating model diagnostics from the engine baseline model.

[c64]   64. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:

presenting a user with aircraft engine data;

prompting the user to select engine performance variables and engine operating conditions from the aircraft engine data to model;

in response to the user selection, preprocessing the engine data into a predetermined format; and

using a regression to build an engine baseline model from the preprocessed data.

[c65]   65. The computer-readable medium according to claim 64, wherein the preprocessing comprises instructions for cleaning the engine data.

[c66]   66. The computer-readable medium according to claim 64, further comprising instructions for validating the engine baseline model.

[c67]   67. The computer-readable medium according to claim 64, further comprising instructions for generating rules for cleaning the preprocessed data.

[c68]   68. The computer-readable medium according to claim 64, further comprising instructions for evaluating the performance of the of the engine baseline model.

[c69]   69. The computer-readable medium according to claim 68, further comprising instructions for displaying results from the evaluation to the user.

[c70]   70. A system for performing baseline modeling of a process, comprising:

a service database that contains data relating to the process;

a preprocessor for processing the data into a predetermined format; and

a baseline modeling component that builds a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c71]   71. The system according to claim 70, wherein the preprocessor comprises a data acquisition component that extracts the data from the service database.

[c72]   72. The system according to claim 70, wherein the preprocessor comprises a data scrubbing component that cleans the data.

[c73]   73. The system according to claim 70, wherein the preprocessor comprises a data segmenting component that segments the data into a plurality of groups.

[c74]   74. The system according to claim 70, wherein the baseline model is a regression model.

[c75]   75. The system according to claim 70, wherein the baseline modeling component (34) comprises a metric component that validates the baseline model.

[c76]   76. The system according to claim 70, wherein the baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c77]   77. The system according to claim 70, further comprising a model diagnostics component that evaluates the performance of the of the baseline model.

[c78]   78. A method for performing baseline modeling of a process, comprising:
storing process data;
preprocessing the process data into a predetermined format; and
building a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c79]   79. The method according to claim 78, wherein the preprocessing comprises extracting the process data from a service database.

[c80]   80. The method according to claim 78, wherein the preprocessing comprises cleaning the process data.

[c81]
         81. The method according to claim 78, wherein the preprocessing comprises

segmenting the process data into a plurality of groups.

[c82]   82. The method according to claim 78, wherein the process baseline model is a regression model.

[c83]   83. The method according to claim 78, further comprising validating the baseline model.

[c84]   84. The method according to claim 78, further comprising generating rules for cleaning the preprocessed data.

[c85]   85. The method according to claim 78, further comprising evaluating the performance of the of the baseline model.

[c86]   86. A computer-readable medium storing computer instructions for instructing a computer system to perform baseline modeling of a process, the computer instructions comprising:
storing process data;
preprocessing the process data into a predetermined format; and
building a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c87]   87. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for extracting the process data from a service database.

[c88]   88. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for cleaning the process data.

[c89]   89. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for segmenting the process data into a plurality of groups.

[c90]   90. The computer-readable medium according to claim 86, wherein the baseline model is a regression model.

[c91]   91. The computer-readable medium according to claim 86, further comprising instructions for validating the baseline model.

[c92]   92. The computer-readable medium according to claim 86, further comprising instructions for generating rules for cleaning the preprocessed data.

[c93]   93. The computer-readable medium according to claim 86, further comprising instructions for evaluating the performance of the of the baseline model.